



**INITIAL COMMENTS
ON THE SUMMER 2020 THROUGH SPRING 2021
RENEWABLE RESOURCE PROCUREMENT
EVENTS**

**PURSUANT TO SECTION 16.111.5(o) OF THE
ILLINOIS PUBLIC UTILITIES ACT**

**Presented to:
THE ILLINOIS COMMERCE COMMISSION**

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June 18, 2021

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I. INTRODUCTION AND SUMMARY OF TOPICS

As the Illinois Commerce Commission’s (“Commission”) Procurement Monitor, we appreciate the opportunity to submit these comments in response to the Commission’s May 4, 2021 “Public Notice of Informal Hearing (Request for Comments) Concerning Renewable Resources Procurement Events Which Were Held From Summer 2020 Through Spring 2021” (“Request for Comments”). We served the Commission as its Procurement Monitor for all renewable resource procurement events, as we have for several years.

The Illinois procurement process for electricity products – including those from renewable resources – continues to work well and to the benefit of Illinois ratepayers. In these comments, we summarize and comment on the results of the lone renewable resource procurement events held between summer 2020 and spring 2021; that is, the March 2021 utility-scale wind procurement. We then provide comments on two areas impacting Illinois utility-scale wind procurement. We first address the impact of corporate procurement of renewable energy (including utility-scale wind) on the Illinois procurement process. We conclude with our view of the likely impact of the pandemic and related supply chain disruptions on the procurement of utility-scale wind.

II. SUMMARY OF RECENT RENEWABLE RESOURCE RFP RESULTS

We begin with a brief summary of the results of the renewable resource procurement events – or Request for Proposals (“RFPs”) – held between summer 2020 and spring 2021,¹ which are shown below in Table 1.² In total, one procurement event was held seeking renewable energy credits (“RECs”) from utility-scale wind resources. The procurement was held in accordance with Commission Orders.

¹ The information in this report is publically available. For each of these procurements, we provided the Commission with a detailed, confidential report summarizing the results and our analysis of the competitiveness of the procurements.

² The schedule of renewable resource procurement events were held pursuant to the Commission-approved IPA’s Long-Term Renewable Resources Procurement Plan for 2021.

Table 1
Renewable Resource Procurement Events Held Between Summer 2020 and Spring 2021

Date	Buyer	Product
March 2021	Ameren, ComEd, and MidAmerican	Utility-Scale Wind

A. Background on the March 2021 Renewable Resource Procurement Events

The origin of these procurement events is Public Act 99-0906, also known as the “Future Energy Jobs Act,” which was signed into law in December 2016 and became effective June 1, 2017. The Future Energy Jobs Act required, among other items, that the utilities hold “initial forward procurements.” Specifically, the Commission approved (i) an Initial Forward Procurement for the delivery of one million renewable energy credits annually from new utility-scale wind projects and (ii) a Subsequent Forward Procurement for the delivery of two million renewable energy credits annually from new utility-scale solar projects and brownfield site photovoltaic (“PV”) projects (“solar RECs”). These procurements were held in 2017 and 2018 and resulted in close to three million annual RECs from new wind projects by January 2022.³

Additionally, the Future Energy Jobs Act requires a series of thresholds to be met regarding the procurement of additional utility-scale wind and solar RECs.⁴ Specifically, the Future Energy Jobs Act requires: (a) two million RECs from wind and two million RECs from solar facilities by the 2020-2021 service year; (b) three million wind and three million solar RECs by 2025-2026; and (c) four million wind and four million solar RECs by 2030-2031.⁵

The third utility-scale wind RFP, held in late 2019, failed to procure any RECs.⁶ Subsequent to the Fall 2019 utility-scale wind RFP, the Commission issued an order that (a) required an additional forward procurement for utility-scale wind resources as a replacement for the RECs that would have been procured in 2019 and (b) required that the RFP take place by May 31, 2021.⁷ The RFP was issued on November 19, 2020 and updated on January 19, 2021.

³ One of the winning bidders won only a portion of their bid and rejected the partial award.

⁴ A REC represents the environmental attributes corresponding to one MWh of energy generated from renewable energy resources.

⁵ IPA Long-Term Renewable Resources Procurement Plan, Final Plan, August 6, 2018. p 27-28.

⁶ The results of this RFP were rejected by the Commission on October 30, 2019, and no projects were selected.

⁷ Illinois Commerce Commission, “Order,” Docket No. 19-0995, February 18, 2020, pages 17 to 18.

B. March 2021 Utility-Scale Wind RFPs

In March 2021, Ameren, ComEd, and MidAmerican solicited bids for the sale of RECs derived from new utility-scale wind resources. The RECs would help each utility meet its obligations under the Illinois Renewable Portfolio Standard. The procurement sought RECs only—developers were free to sell the energy and capacity from their projects to other parties or into the PJM or MISO wholesale markets. The procurements sought one million RECs from utility-scale wind resources⁸ with an estimated date of first REC delivery by June 15, 2024 and proceeding for a 15-year period.

The RFP did not yield any winning bids. The Commission approved the results on March 18, 2021.⁹ Despite this result, it is important to note that, since 2017, the Illinois procurement process has successfully procured about 3,000,000 annual RECs from new wind projects.¹⁰

C. Bates White's Reports and Recommendations on All Renewable Resource Procurement Events

Following the procurement noted above, we provided a confidential report to the Commission that presented the procurement results and assessed bidder behavior and compliance with the rules. We made no recommendation on the results of the 2021 Utility-Scale Wind RFP as there were no winning projects.

Overall, the Illinois procurement events continue to succeed in leveraging the power of competition for Ameren, ComEd, and MidAmerican ratepayers in procuring renewable energy credits from a variety of technology types, size, and categorical description. While procurement results such as those observed in the March 2021 Utility-Scale Wind procurement are disappointing, the overall structure of the procurement and its process are not to blame, as they continue to employ best practices. Below, we address two exogenous variables that likely had some impact on the procurement results.

⁸ The Future Energy Jobs Act defines “Utility-scale wind project” as “an electric generating facility that: (1) generates electricity using wind; and (2) has a nameplate capacity that is greater than 2,000 kilowatts.” Projects were required to be located in Illinois and be new, i.e., to have not commenced operations on or before June 1, 2017.

⁹ Illinois Commerce Commission, “Public Notice of Successful Bidders and Average Prices, Illinois Power Agency March 2021 Forward Procurement of Renewable Energy Credits from New Utility-Scale Wind Projects, March 18, 2021.”

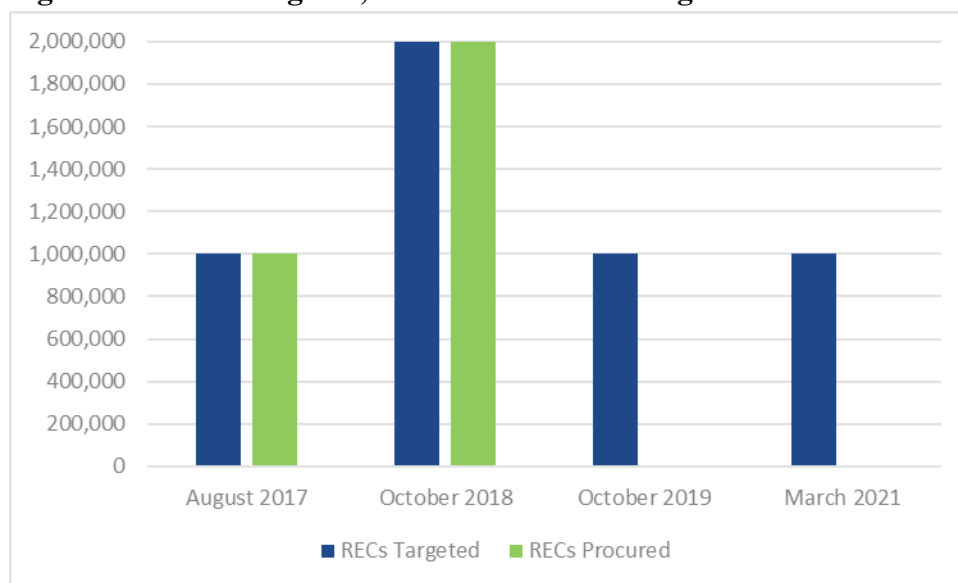
¹⁰ Ibid.

III. Impact of Corporate Buyers of Renewable Energy on Illinois Wind Procurement

A. Results of Recent Utility-Scale Wind Procurements

The March 2021 Utility-Scale Wind RFP was the fourth long-term forward procurement of utility-scale wind RECs held in Illinois. The first two, held in August 2017 and October 2018, respectively, were decidedly positive, successfully procuring 3,000,000 annual RECs¹¹ at average prices significantly below \$5.00/REC. The second two, including the March 2021 event, have not been able to produce the same success, failing to procure any RECs at all. The stark difference in outcomes between the first and second set of procurements is shown in Figure 1.

Figure 1. RECs Targeted, Procured in Four Long-Term Forward Utility-Scale Wind RFPs



There may be several factors contributing to the disparate results. One may be the finite nature of land suitable to development of a utility-scale wind farm. Illinois is the 25th largest U.S. state by land area over 57,000 square miles in size, but not every square mile can host a utility-scale wind project, and many already do. According to NREL,¹² there are 44 utility-scale wind projects operating in Illinois with a total capacity of almost 6.8 GW. Suitability also includes factors beyond just available land, such as siting and permitting challenges. Thirty-

¹¹ The precise number of annual RECs is slightly lower, at 2,944,753 RECs. See Tables 3-5, 3-6, and 3-7 of the IPA's 2021 Final Revised Long-Term Renewable Resources Procurement Plan, April 20, 2020.

¹² National Renewable Energy Laboratory, "Wind Prospector," Eastern Wind Dataset, available at: <https://maps.nrel.gov/wind-prospector>.

seven Illinois counties have zoning ordinances in place that apply specifically to wind projects.¹³ While ordinances are essential legal tools in governing land use, they can occasionally negatively impact the viability of prospective wind projects.¹⁴

Potentially exacerbating this factor is Future Energy Jobs Act's locational requirements for Illinois compliant RECs. Specifically, the Act requires qualifying RECs to be generated by resources in Illinois, and though they may be generated by resources in the six states adjacent to Illinois,¹⁵ such adjacent-state resources must demonstrate they meet public interest criteria contained in the Act. RECs generated in all other states are ineligible. These legislative limits necessarily shrink the pool of potential bidders in the utility-scale wind procurements and place a premium on in-state sites and resources.¹⁶

Another factor that may be contributing to fewer winning projects in the Illinois long-term wind RFPs is the recent trend of corporate support for and purchases of new renewable projects, including utility-scale wind. Every new renewable project that signs a long-term agreement with a corporate buyer is one less project that could bid into the Illinois long-term procurements. Thus, corporate buyers may represent a form of competition to the Illinois utilities in the procurement of new and long-term renewable energy.

B. Background on and Evidence of Corporate Procurement of Renewables

Corporate procurement of utility-scale wind output can take a few forms. Most common is through purchase power agreements, or PPAs, which can be either "physical" or "virtual." Under physical PPAs, which are less common in corporate procurement and only available in states that offer retail choice (such as Illinois), corporate buyers purchase the physical energy from the project as well as the RECs generated. Virtual PPAs, on the other hand, are purely financial – so-called "contract for differences" – in which the buyer pays a fixed price in exchange for a variable cash flow – usually the LMP at the buyer's node – as well as the project's RECs. Virtual PPAs allow the corporate buyer to (a) hedge some portion of its energy costs and (b) receive RECs, all without (c) any requirement for the energy to be deliverable to the corporate buyer's location. Other options for corporate procurement include purchasing of RECs on secondary markets as well as green tariff purchases, which places the utility as the intermediary between renewable projects and corporate buyers. (Illinois utilities do not offer green tariffs.)

¹³ Wind Energy Policies and Incentives, WINDEXchange, accessed June 16, 2021.
https://windexchange.energy.gov/policies-incentives?page=3&sort_by=state&state=il.

¹⁴ See, for example, *Ford County Chronicle*, "Wind-farm developer 'moving on to more receptive pastures,'" July 28, 2020, available at: <https://fordcountychronicle.com/2020/07/wind-farm-developer-moving-on-to-more-receptive-pastures>.

¹⁵ These include Wisconsin, Iowa, Missouri, Kentucky, Indiana, and Michigan.

¹⁶ Notably, all of selected winning bidders in the prior four long-term utility-scale wind RFPs were Illinois projects.

Evidence of corporate demand for renewable energy is widely reported. According to the Renewable Energy Buyers Alliance, or REBA, 2020 was a record year for U.S. based utility scale corporate procurement.¹⁷ In 2020, 35 U.S. corporations announced a total of 98 deals, an increase of 17% from 2019's prior record of 84 announced deals. In total, the 2020 deals summed to 10.6 GW of contract capacity, an increase of 13% from 2019.¹⁸ Recent estimates place the entire U.S. corporate renewables market between 35 GW¹⁹ and 41 GW²⁰ of contracted capacity.

Much of the activity in corporate renewable procurement has taken place in Illinois. In fact, according to S&P Global, Illinois is ranked second among all U.S. states in corporate renewable PPA capacity at 3,300 MW.²¹ This is largely the result of Illinois' renewable resource capability (which is a function of wind speeds, sunlight, population density, and land mass, among other factors), as well as Illinois' deregulated status. Unlike vertically-integrated states with traditional regulation, which forces any corporate procurement of renewable energy through the electric utility, Illinois affords corporate buyers with the ability to sign purchase power agreements directly with developers of renewable resources. Figure 2 shows the location of wind and solar resources that have corporate off-takers. Note that many are clustered in deregulated states, such as Texas and Illinois.

¹⁷ REBA Deal Tracker, accessed May 2021. REBA defines "U.S.-based utility scale procurement" as (a) based in the U.S., (b) involving an off-taker that is a corporation in the commercial or industrial sector, (c) involves procurement of at least 20 MW, whether on-site or off-site, (d) being publicly announced, whether through direct press releases by the corporation or through other avenues, such as regulatory filings, and (e) involving either a power purchase agreement, a green tariff, direct project ownership, bilateral utility deals, a tax equity investment, or a green power purchase.

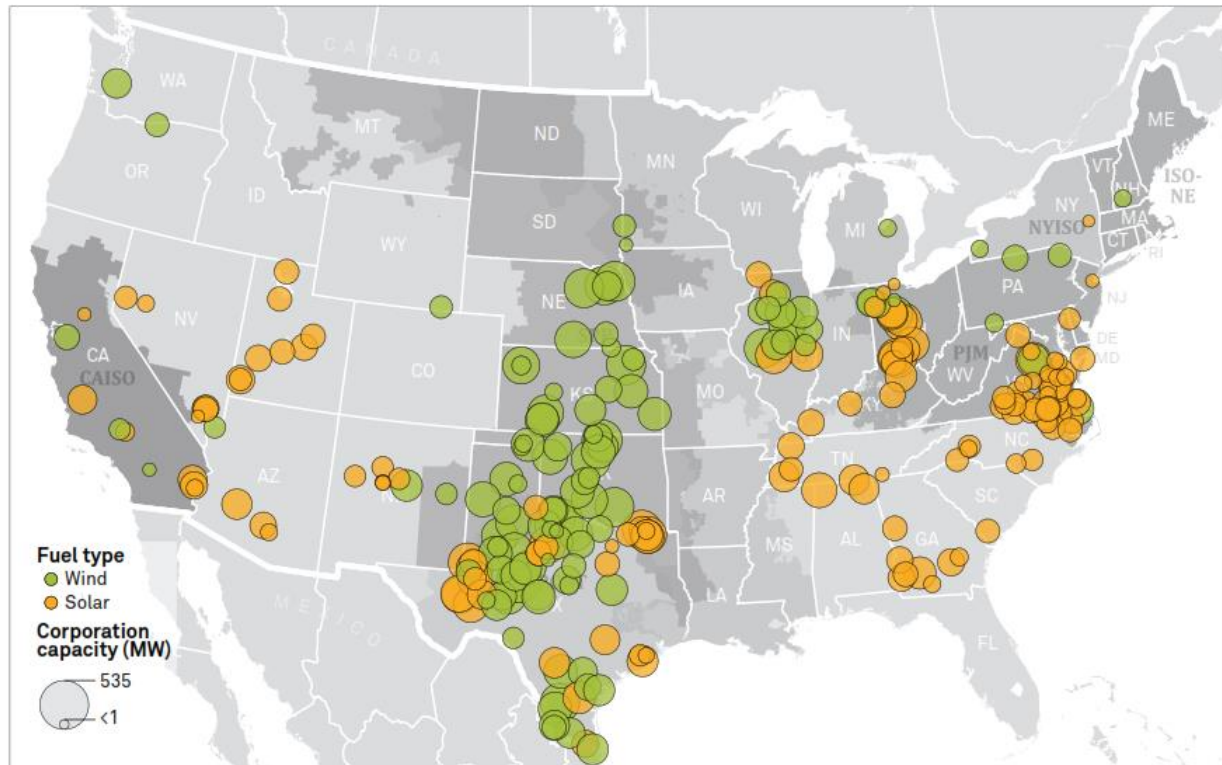
¹⁸ REBA Deal Tracker, <https://rebuyers.org/deal-tracker/>.

¹⁹ Ibid.

²⁰ S&P Global Market Intelligence, "RRA Regulatory Focus: 2021 Corporate Renewables Outlook," April 21, 2021, page 2.

²¹ Ibid.

Figure 2. Wind and Solar Projects with a Corporate PPA²²



As of April 1, 2021.

The Haystack Wind Project capacity designated a corporate PPA was not disclosed.
Only includes utility-scale wind and solar projects and on-site projects 5 MW or greater.

Map credit: Elizabeth Thomas

Source: S&P Global Market Intelligence

Examples of utility-scale wind corporate renewable projects in Illinois include:

- The Otter Creek Wind Farm, owned by Avangrid Renewables, LLC, is a 158 MW wind project in LaSalle County. It reached commercial operations in March 2020.²³ The corporate buyer for the Otter Creek project is T-Mobile, which signed a long-term contract for output from the project.²⁴
- The output of EDP Renewables' 205 MW Bright Stalk wind farm in McLean County is under contract with Walmart and Salesforce, purchasing 123 MW and 80 MW of the

²² Ibid, page 3.

²³ Avangrid Renewables, "Otter Creek Wind Farm," available at:
https://s24.q4cdn.com/489945429/files/doc_downloads/green_bonds/20-3335-AR-Otter-Creek-Sheet-Final.pdf.

²⁴ *EE Online*, "Avangrid Renewables Announces Contract with T-Mobile: Otter Creek Wind Farm in Illinois has achieved commercial operation," April 22, 2020, available at:
<https://electricenergyonline.com/article/energy/category/wind/141/829530/avangrid-renewables-announces-contract-with-t-mobile-otter-creek-wind-farm-in-illinois-has-achieved-commercial-operation.html>.

project's capacity, respectively.²⁵ The project entered commercial operations in February 2020.²⁶

- The Green River Wind Farm, developed by Geronimo Energy, is a 194 MW project that entered operations at the end of 2019 and has virtual power purchase agreements with Apple, Akamai Technologies, and Swiss Re. The project is located in Lee and Whiteside Counties.²⁷
- Leeward Renewable Energy's 80 MW Lone Tree Wind project, in Bureau County, has a long-term virtual power purchase agreement with Target Corporation. The project reached commercial operations in November 2020.²⁸
- Invenergy's 250 MW Blooming Grove Wind Energy Center in McLean County reached commercial operations in March 2021 and has virtual power purchase agreements with Verizon and Saint-Gobain North America.²⁹

C. Reasons Corporate Off-takers May Be Attractive Counterparties

The extent to which corporate buyers represent buyer-side competition for the Illinois utilities for renewable project output is difficult to define with any precision. Most of these corporate transactions remain outside the public realm until they are finalized, making it unclear whether the renewable project developer was looking at alternatives, such as the Illinois utility-scale wind procurements. Moreover, the terms and conditions of the power purchase agreements may be quite different than those contained in the standard agreements offered to bidders in the Illinois procurements. Since the corporate PPA terms are not public, it is not possible to do a full comparison of those terms. Nevertheless, the recent activity in corporate utility-scale wind procurement suggests that the market for new, utility-scale wind projects remains viable in Illinois.

²⁵ *Renewable Energy World*, "Construction completed at \$300M, 205-MW Bright Stalk wind energy farm," February 10, 2020, available at: <https://www.renewableenergyworld.com/wind-power/construction-completed-at-300m-205-mw-bright-stalk-wind-energy-farm/#gref>.

²⁶ *Windpower Engineering & Development*, "205-MW Bright Stalk Wind Farm in Illinois now up and running," February 6, 2020, available at: <https://www.windpowerengineering.com/205-mw-bright-stalk-wind-farm-in-illinois-now-up-and-running/>.

²⁷ *North American WindPower*, "Geronimo Touts Economic, Social Benefits of Green River," July 21, 2020, available at: <https://nawindpower.com/geronimo-touts-economic-social-benefits-of-green-river>.

²⁸ Leeward Renewable Energy, "Lone Tree Wind," available at: <https://www.leewardenergy.com/projects/allegheeny-ridge-wind-farm-7/>.

²⁹ *North American WindPower*, "Invenergy Brings Blooming Grove Wind Center Online," March 10, 2021, available at: <https://nawindpower.com/invenergy-brings-blooming-grove-wind-center-online>.

Corporate buyers may have a few advantages that make them attractive counterparties. First, thanks to virtual PPAs, corporate buyers have flexibility in the location of the renewable projects with which they transact. The renewable energy does not need to be deliverable to the corporate buyer's location, but the PPA will still allow the buyer to hedge their exposure to wholesale energy market prices. This can be particularly advantageous to corporate buyers with widely distributed electric loads. Second, corporate procurement can occur on its own timeline, affording continuous procurement and ad hoc adjustments to the procurement schedule to accommodate potential project developers. Third, corporate procurement can involve multiple corporate buyers that join forces to take advantages of economies of scale and allow smaller corporate buyers to access larger projects at competitive prices and terms. The example above of Geronimo Energy's Green River Wind Farm is such a project in which smaller buyers (Akamai, Etsy, and Swiss Re) partnered with a larger buyer (Apple).³⁰

A fourth advantage of corporate buyers may be the terms and conditions offered in their PPAs. While those agreements are generally confidential, some information can be gleaned from public sources about their contents that may provide some insight. One such favorable term may be the fixed price to be paid by the buyer, which, in a virtual PPA, would be a bundled price that includes both the price for the RECs and a *de facto* energy component. This provides project developers with revenue certainty for their entire projects, not just for their RECs, in a single off-taker agreement. And while a virtual PPA may still place some energy price risk on the developer, that risk is limited.

Consider the following example. Assume a corporate buyer in PJM signs a 15-year virtual PPA with a utility-scale wind project. Under the virtual PPA, the buyer will pay the seller a fixed price of \$50.00/MWh. In return, the seller provides the buyer with all RECs generated from the project and agrees to pay the LMP at the corporate buyer's node in PJM. And the seller can also sell the physical energy from its project and receive the LMP at its node. In a given hour, the seller receives (a) the fixed price of the virtual PPA, or \$50.00/MWh, plus (b) the energy LMP at its node, minus (c) the LMP at the buyer's node. The price for such a contract would gravitate toward a price that provides the seller with sufficient certain revenue to allow the project to be financed while providing the buyer with a reasonable, fixed price for renewable energy.

Contrast such a result with the REC-only contracts offered in the Illinois long-term, utility-scale wind procurements. Winning suppliers receive their as-bid fixed price for RECs over a 15-year term, but no guaranteed payments for their energy. Suppliers would instead be free to sell their energy through long-term bilateral agreements with other counterparties or into the PJM short-term markets and receive the market price. This subjects suppliers to additional long-term energy price risk. It also makes it more difficult for bidders to build a fixed price

³⁰ *North American WindPower*, "Geronimo Touts Economic, Social Benefits of Green River," July 21, 2020, available at: <https://nawindpower.com/geronimo-touts-economic-social-benefits-of-green-river>.

REC-only bid, since the REC revenue is meant to capture the difference between the project's costs and the revenue it receives in the energy markets. Volatility in the energy markets can exacerbate this challenge.

D. Outlook for Future of Corporate Procurement of Renewables in Illinois

Going forward, the overall outlook for corporate procurement of renewables appears strong. One estimate suggests that between 55 GW and 85 GW of additional wind and solar projects will be developed to meet demand from corporate PPAs by 2030.³¹ Several drivers of more corporate procurement remain. These include the fact that corporate procurement is a relatively new phenomenon with substantial amounts of commercial and industrial load that remains untapped, an increased focus on “sustainability” among U.S. corporates, greater numbers of electricity-intensive technology companies, and further declines in wind and solar capital costs.³²

How that potential additional corporate demand for renewables plays out, however, is also not certain. As more U.S. states offer corporate buyers new or additional options to purchase renewable energy, new projects may be developed in such states that traditionally were closed to third-party buyers of power. Traditionally-regulated, vertically integrated states may introduce green tariff options that allow corporate buyers to achieve their renewable energy goals. This could indirectly reduce corporate demand for new renewables projects in states historically friendly to such projects, such as Illinois.

There is also a question of how the corporate renewable market will evolve, particularly as it relates to the reporting of a company's voluntary compliance efforts. Historically, corporates have not all followed a standard, uniform approach to reporting of renewable energy usage or disclosing the sources of their renewable energy. Some do not distinguish between corporate procurement that result in “additive” renewable energy projects (e.g., a corporate PPA for a new utility-scale wind farm) and purchases of unbundled RECs on a secondary market.³³ As reporting becomes more standardized, those standards are expected to get more stringent, with focus not only on the amount of kilowatt-hours generated by corporate-backed renewable energy projects, but also the timing of those kilowatt-hours and the overall resource mix of grid power to which a particular corporate load is interconnected. Google, for example, notes that while it “buys enough renewable energy to match its electricity use each year,” it only uses

³¹ Kobus, Nasrallah, and Guidera, “The Role of Corporate Renewable Power Purchase Agreements in Supporting US Wind and Solar Deployment, March 24, 2021, available at: <https://www.energypolicy.columbia.edu/research/report/role-corporate-renewable-power-purchase-agreements-supporting-us-wind-and-solar-deployment>.

³² Ibid.

³³ Environmental Law Institute, “Corporate Statements About the Use of Renewable Energy: What Does the ‘100% Renewable’ Goal Really Mean?,” January 2019, pages 23 to 24.

“carbon-free energy” about 61% of the time due to the mix of resources feeding the grids from which its operations draw their power.³⁴ This could lead corporate buyers away from virtual PPAs to alternative arrangements that aggregate renewable projects and potentially include energy storage.³⁵

E. Lessons for the Illinois Procurement Process

Given the success of corporate renewable procurement in Illinois and its potential to persist, it is reasonable to consider whether there are any lessons to draw from corporate procurement that could be adopted in the Illinois procurement process. In our view, there is one considerable advantage that corporate procurement has had over the Illinois procurements, namely, the ability to offer a bundled price for both energy and RECs that provides greater certainty to renewable project developers. Indeed, in March 2020, multiple commenters made a similar point and recommended either a bundled payment or a REC payment that varies with wholesale market prices.³⁶ There, commenters noted too that because corporate purchasers of power demand not just energy but RECs, too, the market for selling the energy output of their new renewable projects through long-term, bilateral contracts is very limited. Thus, they argued for a bundled product (or variable-priced RECs). However, as the IPA has noted, the idea of procuring a bundled product necessarily introduces multiple legal and policy concerns,³⁷ and thus the process for using fixed price, REC-only contracts in the Illinois procurements remains.³⁸

Factors that do not appear to contribute to any differences in corporate procurement and Illinois procurement outcomes are procurement size and contract term (in years). Regarding the former, the Illinois procurements have all sought between one million and two million annual RECs, allowing for projects of all sizes to participate and have a reasonable chance at winning sufficient RECs to make their projects viable. Regarding the latter, the 15-year terms offered by the Illinois procurements are within industry standards.

As corporate procurement persists, it is important to consider what it may mean for Illinois utilities and ratepayers. Corporate procurement could, on occasion, crowd out Illinois utility procurement, especially when corporate buyers are able to offer better rates, terms, and conditions to developers than the Illinois utilities. The impact of such potential crowding out could manifest itself in lower REC procurement and/or marginally higher average winning REC

³⁴ *S&P Global Market Intelligence*, “‘Beyond the PPA’: Quest for 24/7 carbon-free power is reshaping energy buying,” June 4, 2021.

³⁵ *Ibid.*

³⁶ See public versions of Commenters 2, 3, and 4, “Responses to IPA’s Request for Comments Regarding its Next Wind Procurement,” available at: <https://www2.illinois.gov/sites/ipa/Pages/wind-comments-2020.aspx>.

³⁷ Illinois Power Agency, “Final Revised Long-Term Renewable Resources Procurement Plan,” April 20, 2020, page 27.

³⁸ We note that the IPA made several improvements to the utility-scale wind contracts in advance of the March 2021 procurement, many in response to the comments received in March 2020.

prices in the long-term, utility-scale procurements to the extent that the best and lowest cost projects secure deals with corporate buyers. At the same time, corporate procurement that results in new, additional renewable energy projects means a cleaner mix of resources feeding the Illinois grid. This may help speed the arrival of a lower-carbon energy mix in the power sector at the direct expense of corporate entities, in both Illinois and elsewhere.

IV. Likely Impact of Pandemic and Supply Chain Disruptions on Illinois Wind Procurement

One additional area that may have affected procurement of utility-scale wind in Illinois is the combined impact of the COVID-19 pandemic and its associated supply chain impacts. As noted in the *Harvard Business Review*, “[t]he supply shock that started in China in February [2020] and the demand shock that followed as the global economy shut down exposed vulnerabilities in the production strategies and supply chains of firms just about everywhere.”³⁹ The wind generation industry was not immune. In March 2020, the American Wind Energy Association estimated that COVID-19 would put approximately 25 GW of new wind generation at risk, representing \$35 billion in investment.⁴⁰ The *New York Times* reported that EDF Renewables had to delay its completion of a \$374 million project in Nebraska in April 2020 due to a coronavirus outbreak among project workers and other supply chain issues, ranging from a railyard in central Nebraska to a turbine manufacturing facility in India.⁴¹

2020 was ultimately a year of disruption for renewable energy developers, including those of wind generation. The IEA reported that “[d]elays due to supply chain disruptions and/or closure of construction sites have the obvious result of reducing additional short-term capacity additions, with the impacts most likely seen in 2020.”⁴² The IEA continued:

A second consequence is that delayed projects may run the risk of not reaping the benefit of incentives ending in 2020. Even with site access, almost all lockdown measures and social-distancing guidelines require companies to follow precautionary safety measures. Limitations on the number of workers allowed on site and/or stricter hygiene protocols

³⁹ Willy C. Shih, *Harvard Business Review*, “Global Supply Chains in a Post-Pandemic World,” September/October 2020, available at: <https://hbr.org/2020/09/global-supply-chains-in-a-post-pandemic-world>.

⁴⁰ *Renewable Energy World*, “AWEA predicts how COVID-19 will impact the wind industry,” March 20, 2020, available at: <https://www.renewableenergyworld.com/wind-power/awea-predicts-how-covid-19-will-impact-the-wind-industry/#gref>.

⁴¹ Ivan Penn, *New York Times*, “How the Virus Slowed the Booming Wind Energy Business,” October 26, 2020, available at: <https://www.nytimes.com/2020/10/26/business/energy-environment/coronavirus-renewable-energy-wind.html>.

⁴² International Energy Agency, “Report Extract: Covid-19 impact on renewable energy growth,” available at: <https://www.iea.org/reports/renewable-energy-market-update/covid-19-impact-on-renewable-energy-growth>.

inevitably slow construction down, increasing the risk of delays. Delays in components or construction put companies at risk of missing critical policy deadlines in China, the United States and Europe, denying them financial incentives they previously qualified for...It is reasonable to assume that a majority of projects missing incentive deadlines may be further delayed or cancelled.⁴³

The IEA also noted that numerous countries, including the U.S., enacted policy changes to soften the impact of COVID-19 on the renewable energy industry, including extending commissioning deadlines and tax credit safe harbor provisions.⁴⁴

These disruptions were certainly a headwind for renewable energy developers in 2020 and likely had some impact on the March 2021 Utility-Scale Wind RFP. Some of those disruptions have spilled into 2021, primarily in the form of sustained supply chain disruptions and heavy increases in component costs. For example, Vestas Wind Systems A/S (“Vestas”), one of the largest producers of wind turbines in the world, reported that its revenue decreased 12 percent in the first quarter of 2021, noting that it continues to face “logistical challenges and supply chain bottlenecks.”⁴⁵ Vestas also reported a quarterly increase of almost 13 percent in the average selling price of new orders,⁴⁶ an “all-time high” of backlog orders⁴⁷ (suggesting strong, pent up demand), and increased commodity costs for component parts and transportation costs.⁴⁸

Regarding commodity component costs, modern wind turbines are typically comprised of approximately 66 to 79 percent steel.⁴⁹ Steel has seen a well-publicized steep increase in benchmark market prices. Consider the daily futures price for U.S. Midwest Domestic Hot-Rolled Coil Steel, which, on April 1, 2020, was trading at \$515.00/ton; by the first trading day of January 2021, that price had increased by 99 percent to \$1,023.00/ton.⁵⁰ As of June 17, 2021,

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Vestas Wind Systems A/S, “First Quarter 2021,” May 2021, slide 11, available at: https://www.vestas.com/~media/vestas/investor/investor%20pdf/financial%20reports/2021/q1/2021%20q1_pres.pdf.

⁴⁶ Ibid., slide 7.

⁴⁷ Vestas Wind Systems A/S, “Interim Financial Report First Quarter 2021,” page 3, available at: https://www.vestas.com/~media/vestas/investor/investor%20pdf/financial%20reports/2021/q1/210505_10_company_announcement.pdf.

⁴⁸ Will Mathis, *Bloomberg*, “Top Wind Turbine Maker Plans to Raise Prices,” May 5, 2021, available at: <https://www.bloomberg.com/news/articles/2021-05-05/vestas-posts-surprise-loss-as-pandemic-amplifies-supply-concerns>.

⁴⁹ National Renewable Energy Laboratory, “2015 Cost of Wind Energy Review,” page 65, available at: <https://www.nrel.gov/docs/fy17osti/66861.pdf>.

⁵⁰ US Midwest Domestic Hot-Rolled Coil Steel Futures (source CME), available at: <https://www.investing.com/commodities/us-steel-coil-futures-historical-data>.

steel prices have increased by an additional 62 percent.⁵¹ Iron ore, which comprises up to 17% of a wind turbine, saw its prices increase 107 percent between April 2020 and January 2021, and another 26 percent since then.⁵² Prices for other components of wind turbines have seen similar extreme price increases, including fiberglass,⁵³ copper,⁵⁴ and aluminum.⁵⁵

The unique impact of COVID-19-related restrictions, supply chains interruptions, and upward effect on freight and commodity costs likely negatively affected renewable developers, including those of utility-scale wind projects. This would likely be true even of those developers who had already secured key project components, such as turbines, due to shipping delays and labor challenges brought on by the pandemic. As restrictions ease and supply chains recover, project development hurdles should lessen and prospects for future successful procurements should improve.

⁵¹ Ibid.

⁵² Business Insider Markets, “Iron Ore,” available at: <https://markets.businessinsider.com/commodities/iron-ore-price>.

⁵³ YCharts, “US Producer Price Index: Rubber and Plastic Products: Reinforced Fiberglass n.e.c.,” available at: https://ycharts.com/indicators/us_producer_price_index_rubber_and_plastic_products_reinforced_fiberglass_nec.

⁵⁴ Copper Futures - Jul 21 (HGN1), available at: <https://www.investing.com/commodities/copper-historical-data>.

⁵⁵ YCharts, “Aluminum Price,” available at: https://ycharts.com/indicators/aluminum_price.